

Modernization sets stage for leap in analytics ●●

Technology is a wonderful thing. The possibilities seem endless today as to what we can do with it, and that's just from a consumer perspective. Within the military, technology has made futuristic applications a reality, but legacy systems have now become a significant problem when it comes to interoperability and data extraction. Here, Steve Bennett, Director of SAS' Global Government Practice and the former Director of the National Biosurveillance Integration Center within the Department of Homeland Security, outlines the challenge.

My generation was the first to grow up with in-home video game systems. While I pretty much wore out my Atari 2600, the device that really got most of my time was my 8-bit Nintendo. When my dad was cleaning out the attic recently, he discovered and dusted off that machine, stuck it in a box, and sent it to me. I couldn't wait to fire it up and see if I could still beat 'Super Mario Brothers' in record time. There was just one problem: I couldn't find a single TV in my house that would connect to the Nintendo's 1980s analog video output.

Defense organizations have a lot of 'Nintendos' they are working hard to modernize. But for them, it's more than just replacing Nintendos with modern systems. As defense organizations undertake IT modernization efforts, they should not settle for simply upgrading or replacing outdated legacy systems. Ultimately, their most important assets are not the systems or networks that are deployed, but the data and associated services that are delivered.

Department of Defense (DoD) leaders understand this. The first guiding principle of the Army Data Strategy, for example, is that 'data are an enterprise asset, information is enterprise currency, and knowledge is an enterprise resource.'

The military services and their supporting organizations have more data - and more diversity in data - than any other industry, with the ability to tap into both traditional information systems in garrison and networked platforms on land, in air and at sea.

In most organizations, however, the value of data as an enterprise asset is limited by outdated or de facto information architectures that keeps the data bottled up in legacy silos.

A modernization initiative presents a unique opportunity to break down these silos and take an enterprise approach to data. From the outset, organizations should develop modernization plans with the express intent of leveraging data to achieve operational and strategic goals.

Untapped potential

The shortcomings of current defense IT environments are well recognized. DoD organizations might have a wealth of data at their disposal, but often they are not realizing its full value.

"Despite the importance of data, general consensus exists among government officials and analysts that DOD does not sufficiently incorporate data into decision-making," according to a January 2016 report from the Congressional Research Service. "Many major policy decisions - from economic development programs in Afghanistan to choosing the weapon systems of the future - are made without the benefit of substantive data."

The problem is that 'substance' is not just a matter of volume. If data is scattered across multiple systems, with no cohesive framework for integrating, managing and analyzing it, its overall volume is meaningless.

This situation reflects the grassroots way in which the use

of analytics has arisen in defense organizations. Typically, individual offices have launched initiatives to meet the requirements of their specific programs, without reference to a common set of standards, processes or architecture.

Early on, this wasn't a problem. But as organizations have become more savvy consumers of data, they have recognized the value of integrating and managing data at the enterprise level to gain new insights that no individual dataset could provide. Unfortunately, the patchwork-like architecture of most defense IT environments makes it difficult to gain that enterprise perspective.

Extracting value

Defense organizations can use the modernization process to address these problems. But it requires a change in thinking. Rather than seeing data as a technical asset, organizations should view it as a strategic asset—and develop an IT strategy for extracting value from that data.

The foundation of that strategy is an enterprise data management framework to which individual offices can map their individual systems, creating a cohesive environment in which different users and applications can leverage the same data—what the Army Data Strategy describes as 'many-to-many data exchange.'

This framework also accelerates the process for deploying new, innovative solutions, according to the Navy.

"Instead of waiting until a requirement arises to determine what we have and how to implement our new idea, good data management would complete the necessary hard work ahead of time," states the Navy's 'Strategy for Data and Analytics Optimization,' released in September 2017.

In the same vein, defense agencies should create a single, cohesive environment for analytics. Whatever tools are deployed, they should work seamlessly with open source technology, making it easier for analysts or systems to integrate data across different toolsets and data types. Analytic solutions also should work with any infrastructure, whether in the cloud, on-premise or in a hybrid environment.

The goal is to remove the obstacles to data in an organization - to make it as easy as possible for analysts to access, analyze and collaborate on data, wherever it might reside in an organization.

Data-driven decision-making

The ultimate goal, of course, is to leverage data in the decision-making process at all levels of an organization—to foster the development of a data-driven decision-making culture.

In a March 2016 report, the Air Force describes data science



●● Steve Bennett, Director of SAS' Global Government Practice

SMALLSAT SYMPOSIUM™



SILICON VALLEY 2018

WORKSHOPS : February 5th
CONFERENCE : February 6th – 8th

NETWORK WITH INNOVATORS



STAY AHEAD OF THE MARKET

AGENDA

February 5th, 2018 – Workshops

- COTS and 3D-Printing and Next Generation Technologies
- Regulatory Overview & Legal Matters
- SmallSat Financial Considerations
- SmallSat Insurance - Facts, Considerations and Trends
- Earth Observation - On Orbit Considerations
- Earth Observation - Data Processing and Analysis

February 6th, 2018 – Sessions

Keynote Speaker - Gwynne Shotwell, President & COO, SpaceX

- SmallSat M&A 2017: A Year in Review & Trends to Watch Out For in 2018
- The SmallSat Industry – A Synopsis
- Briefing - Space Debris
- Briefing - Space Law and Policy
- Earth Observation and Remote Sensing—What is the market?
- Launch Opportunities and Payload Differences
- How NASA, Government, Universities and Research Institutes Work with Industry
- Working With Prime Contractors

February 7th, 2018 – Sessions

Keynote Speaker - Dario Zamarian, Group President, SSL

- Market for Defense Applications
- Ground – Services and Networks
- Briefing - Mobile Connectivity
- Briefing – SmallSat Manufacturing: Staying Ahead of Technology
- Constellations – Proposals and Implementation
- Cloud Computing in Smallsat Constellations
- Finance and Securing Capital

February 8th, 2018 – Sessions

- Spectrum Availability and Alternatives
- Briefing – How to Grow Your Company - Securing Exceptional Personnel
- Small Satellite Advantage – Business Case Considerations
- Software and Vulnerability to Cyber Threats

SMALLSATSHOW.COM

as providing a 'decision-advantage' in the intelligence, surveillance and reconnaissance (ISR) space. The problem is that at present, only a limited number of airmen are trained in the principles of big data and analytics.

The report, developed by the Deputy Chief of Staff for ISR, recommends incorporating data science into a broader range of training and education objectives. The idea is not to turn every analyst into a data scientist, but to ensure that ISR professionals at all levels can "understand and wield the capabilities that data scientists bring to the flight," the report states.

Lawmakers also are looking to improve the data competency of DoD decision-makers. The Congressional Research Service found that even when data is available, decisions are often driven by perceptions or anecdotal evidence, not data analysis.

Acquisition is of particular concern. A provision of the Senate's version of the 2018 National Defense Authorization Act calls for DoD leaders to develop a "consistent policy as to the role of data analytics in establishing budgets and making major milestone decisions."

Additionally, the department would be required to consider how data analytics might be included in acquisition-related curriculum taught at the National Defense University, the Defense Acquisition University and other institutions.

For current initiatives to succeed, according to the Congressional Research Service report, "there must be a culture within DOD that not only values using data to drive decisions, but also integrates data gathering and analysis into the very fabric of the organization."

IT modernization is one vehicle for making that vision achievable. But that will happen only if DoD leaders seize the opportunity and begin to think in new ways about the IT enterprise. Are they happy with simply upgrading their old Nintendos, or are they looking to change the game?

The opportunity is here. DoD organizations have an abundance of data. They also have access to a new generation of analytic tools that make data accessible to a broad range of users. The task now is to develop a modern information architecture that helps DoD leverage those capabilities to meet their key strategic and operational goals. **GMC**



Photo courtesy US Department of Defense

Defense use cases for analytics

Throughout the Defense Department, the military services and supporting agencies are making the case for a deeper investment in data analytics. Here is a sampling of applications currently envisioned or in development.

Army pre-positioned stock

Analytics is key to strengthening the Army's ability to equip soldiers quickly and effectively. A new capability being developed will provide for automated deployment of Brigade-set equipment in less than 96 hours, according to the Army PEO Enterprise Information Systems office.

Smart buildings

DoD leaders are taking a serious interest in the concept of the Internet of Things - that is, systems that gather and analyze data generated by networked devices in the field. One promising application, according to a December 2016 report from the DOD CIO, is the development of 'smart buildings' that are equipped with countless sensors that can be used to reduce energy use, improve safety and provide real-time, automated management of key functions.

Mental health readiness

In the current draft of the 2018 National Defense Authorization Act, Congress directs the department to study the feasibility of using predictive analytics to identify mental health risk and provide targeted intervention for part-time members of the reserve components. Such measures could improve the overall readiness of reserve forces.

Assessing supplier solvency

For years, DoD agencies have used analytics to fine-tune the supply chain - to better align supply shipments with requirements in the field. But what happens if a supplier goes out of business? The Air Force's 448th Supply Chain Management Wing is using analytics to study the financial health of suppliers and anticipate potential problems.

Defense Travel System modernization

DoD leaders plan to make analytics a core component of an upcoming initiative to modernize the Defense Travel System. The initiative calls for an integrated business intelligence capability - including dashboards, scorecards and other analytic tools - to maximize visibility into defense travel spending. This reflects the department's commitment to evidence-based decision-making, according to a recent presentation by the Defense Travel Management Office.



Photo courtesy US Department of Defense

GVF *Satellite.
Solutions.
The World.*

- **GVF serves as the unified voice of the international satellite industry** ●

www.gvf.org